

**Amendments to the Claims**

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

Claims 1 – 12 (cancelled)

Claim 13 (Previously Presented): A gas compressor having n stages connected in series, where n is equal to at least 3, each stage being followed by a cooler wherein at least two coolers have different pressure drops for the compressed gas, the cooler having the lower pressure drop being upstream of that having the higher pressure drop.

Claim 14 (Previously Presented): The compressor of claim 13, in which the cooler of the final stage of the compressor has a higher pressure drop than that of the first stage.

Claim 15 (Currently Amended): The compressor of claim 14, having at least four stages, in which the cooler of the final stages of the compressor have a higher pressure drop than the first stages.

Claim 16 (Previously Presented): The compressor of claim 13, in which at least two coolers have pressure drops differing by at least 30%, or at least 50% or even at least 100%, the cooler having the lower pressure drop being upstream of that having the higher pressure drop.

Claim 17 (Previously Presented): The compressor of claim 16, in which at least two coolers have pressure drops different by at least 100%, the cooler having the lower pressure drop being upstream of that having the higher pressure drop.

Claim 18 (Previously Presented): A unit for separating a gas mixture, which includes at least one compressor of claim 13 and means for sending a gas coming from and/or intended for the unit to this compressor.

Claim 19 (Currently Amended): The air separation unit of claim 18, comprising a cryogenic distillation unit comprising at least one distillation column, means for sending compressed air gas to a column of the unit, means for withdrawing a liquid from a column of the unit, means for vaporizing the liquid by heat exchange with a compressed gas, the compressed gas having been compressed by at least one of the final stages (or by the final stage) of the compressor and/or the compressed air gas having been compressed in the compressor.

Claim 20 (Currently Amended): The unit of claim 19, which includes means for vaporizing the liquid by heat exchange with air gas coming from one of the final stages (or from the final stage) of the compressor.

Claim 21 (Currently Amended): A method of separating a gas mixture by cryogenic distillation in a system of columns in which a gas intended for the system of columns or a gas coming from the system of columns is compressed in a compressor of claim 13, the gas leaving the final stage of the compressor being at a pressure above 5-bar, ~~preferably above 10 bar.~~

Claim 22 (Currently Amended): ~~The method of claim 13,~~ A method of separating a gas mixture by cryogenic distillation in a system of columns in which a gas intended for the system of columns or a gas coming from the system of columns is

compressed in a compressor of claim 13, the gas leaving the final stage of the compressor being at a pressure above 10 bar, in which:

- a) a stream of air is compressed to a first pressure;
- b) one portion of the air at the first pressure is boosted to a second pressure of greater than 10 bar;
- c) one portion of the air at the first pressure is sent for distillation in one column of the system of columns;
- d) a liquid stream is withdrawn from one column of the system;
- e) the liquid stream is vaporized by heat exchange with air at the second pressure, wherein
- f) the stream of air at the first pressure is compressed and/or the portion of the air is boosted up to the second pressure in said at least one compressor.